Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-17. (Canceled)

18. (New) A semiconductor device comprising:

a substrate having a channel region, a first p-type doped region, a second p-type doped region, a first n-type doped region and a second n-type doped region, the channel region being positioned between the first and second p-type doped regions and between the first and second n-type doped regions;

a gate electrode overlapping the channel region; and

a gate insulating layer between the channel region and the gate electrode.

19. (New) The semiconductor device according to claim 18, the first and second p-type doped regions and the channel region forming a p-type transistor, and the first and second n-type doped regions and the channel region forming a n-type transistor.

20. (New) The semiconductor device according to claim 18, the substrate further having a first lightly doped region, the first lightly doped region being positioned between the first p-type doped region and the channel region.

21. (New) The semiconductor device according to claim 20, the substrate further having a second lightly doped region, the second lightly doped region being positioned between the first n-type doped region and the channel region.

22. (New) The semiconductor device according to claim 21, the substrate further having a third lightly doped region and a fourth lightly doped region, the third lightly doped region being positioned between the second p-type doped region and the channel region and the fourth lightly doped region being positioned between the second n-type doped region and the channel region.

23. (New) The semiconductor device according to claim 18, a thickness of the substrate being greater than a depth of the first n-type doped region.

24. (New) The semiconductor device according to claim 18, a thickness of the substrate being greater than a depth of the first p-type doped region.

25. (New) The semiconductor device according to claim 18, a channel length of the channel region in a direction between the first and second p-type doped regions being three times greater than a channel width of the channel region between the first and second n-type doped regions.